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On solvability by quadratures conditions of boundary value problems for second order hyperbolic systems

Sozontova E.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Sozontova E.A. 2016. In the present work we consider boundary value problems for second order hyperbolic system with higher partial derivatives u_{xy} , v_{xy} and u_{xx} , v_{yy} . The aim of the study is to find sufficient conditions for solvability of the considered problems by quadratures. We proposed a method for finding explicit solutions for the mentioned problems based on factorization of the equations in the original systems. As a result, in terms of the coefficients of these systems, we obtain 14 conditions for solvability by quadratures for each boundary value problem.

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Keywords

Boundary value problem, Factorization of equation, Goursat problem, Hyperbolic system, Solvability by quadratures